



October 5, 1998

PN 9566B

Mr. John J. O'Grady  
Remedial Project Manager  
U.S. EPA Region 5  
Superfund Division  
77 West Jackson  
Chicago, Illinois

**RE: Responses to July 20, 1998 Comments for the Work Plan  
Fansteel - North Chicago, Illinois**

Dear Mr. O'Grady:

On behalf of Fansteel, Inc., Carlson Environmental, Inc. (CEI) has revised the enclosed Site Investigation Work Plan to incorporate the comments in your July 20, 1998 letter. Attached to this letter are CEI's responses to the comments dealing with the Site Investigation Work Plan. Specifically, comments 1 through 38 are listed by number and CEI's response immediately follows each comment.

The remaining comments in your July 20, 1998 letter deal with CEI's Quality Assurance Project Plan (QAPP), Great Lakes Analytical's QAPP, and CEI's Health and Safety Plan (HASP). Responses to the comments regarding the QAPPs and HASP will be provided when these Plans are submitted. Great Lakes Analytical is currently completing the detection limit study for tantalum. CEI intends to submit Great Lakes Analytical's QAPP and the HASP by October 12, 1998 and CEI's QAPP by November 2, 1998.

Please feel free to contact me at (312) 704-8843 if you have any question or require additional information during your review of the enclosed items.

Respectfully submitted,

CARLSON ENVIRONMENTAL, INC.

Margaret M. Karolyi, P.E.  
Project Manager

EPA Region 5 Records Ctr.



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attachment - responses to U.S. EPA comments 1-38



CARLSON ENVIRONMENTAL, INC.

**GENERAL COMMENTS:**

1. **The Work Plan does not address the U.S. EPA's comment "b" of its February 9, 1998 letter.** The nature and extent of any contamination of sediments in Pettibone Creek from the southern-most property line for the Vacant Lot Site to the property boundary of the Great Lakes Naval Training Center must be evaluated in the context of Fansteel's contribution.

Fansteel has added three additional sediment sampling locations (two sample depth intervals at each location) in Pettibone Creek, south of the Vacant Lot Site. Please refer to Section 4.2.3 of the revised Site Investigation Work Plan.

2. **The Work Plan does not address U.S. EPA's general comment #2 of its February 9, 1998 letter, requiring investigation of the nature and extent of contamination of source areas.** Some of the sample locations should be based on any past investigations or past sampling results. Please refer to Figure 2 produced by Carlson Environmental, on behalf of Fansteel, Inc.

Fansteel has added two additional borings in the vicinity of the area where trichloroethene (TCE) was previously detected during previous RCRA-related investigations. Specifically, one boring was added both to the south and to the west of the former RCRA Hazardous Waste Management Unit (HWMU). Additionally, the three northern wells along the west property line were shifted further north, so that a possible contaminant plume located in the vicinity of the former HWMU would be detected at these well locations. Please refer to Section 4.2.1 of the revised Site Investigation Work Plan and Figure Two in Attachment A.

3. **Table One of the Work Plan does not show any analysis for polycyclic aromatic hydrocarbon (PAH) compounds.** Both the Creek and the Ditch sediment samples should be analyzed for PAH compounds, volatile organic compounds (VOCs) and all the target analyte list (TAL) metals and tantalum. All soil and sediment samples should be analyzed for PAH compounds to effectively compare with U.S. EPA's EE/CA sampling results.

CEI has revised the sediment sampling to include these compounds. Please Refer to Table One in Attachment B of the revised Site Investigation Work Plan.



4. **No monitoring wells are proposed in the northern and southern part of Fansteel site (Figure Two of Work Plan), where previous investigations have revealed contamination in soil boring and water samples.** All of the proposed well monitoring locations are at the eastern and western perimeters of the Site property, and hence cannot identify plume boundary if it begins in the previously investigated area. Monitoring wells should also be placed along the northern and southern perimeters of the Fansteel property.

Please refer to the revised proposed monitoring well locations shown in Figure Two in Attachment A of the revised Site Investigation Work Plan. Two monitoring well locations are proposed near the northeast and northwest corners of the Fansteel property. Based on the assumed direction of ground water flow (to the southwest), the northeastern well will serve as an up gradient well for the TCE plume previously detected near the former HWMU.

The two southernmost wells (one south of the office building and one west of Metallurgical Building "B") cannot be moved further south due to utility line locations and limited physical accessibility (i.e. the limited distance between the fence line and the site building).

5. **Section 6.0 QUALITY ASSURANCE PROJECT PLAN, Page 16:** In order to complete its review and approve the Quality Assurance Project Plan (QAPP), the U.S. EPA must first receive the field sampling and laboratory standard operating procedures (SOPs).

CEI is currently revising the QAPP. The SOPs will be included as part of the revised QAPP. The QAPP will be submitted for EPA approval under separate cover.

6. **Section 6.0 QUALITY ASSURANCE PROJECT PLAN, Page 16:** Superfund QAPPs should be prepared following the guidance in *REGION 5 SUPERFUND MODEL QUALITY ASSURANCE PROJECT PLAN, Revision 1, May 1996*, rather than the *Region 5 Model RCRA QAPP of May 1993*. Data Quality Objective (DQO) Levels have been eliminated for Superfund projects. The project DQOs should be itemized for each environmental data collecting activity. The reference to "Level II" should be eliminated. Please refer to complete comments on the QAPP below (comments 39 thru 74).

CEI will submit a revised QAPP.



7. **Section 7 HEALTH AND SAFETY PLAN, Page 16:** The Health and Safety Plan (HASP), in its present form, does not meet the relevant Occupational Safety and Health Administration (OSHA) regulations or current U.S. EPA policies. Therefore, this HASP, as currently written, does not allow an employee of the U.S. EPA or its contractor to enter this site under the jurisdiction of this HASP until the above deficiencies are corrected. Please refer to complete comments on the HASP below (comments 75 thru 92).

CEI is finalizing the revised HASP. It will be submitted as a separate document, rather than as an attachment to the revised Site Investigation Work Plan.

**SPECIFIC COMMENTS:**

8. **Section 3.1 VOCs, Page 4:** Please provide a table or tables listing the project required volatile organic compounds (VOCs) and the project required method detection limits (MDLs), practical quantitation limits (PQLs), or reporting limits (RLs) for soil and groundwater. Please include the site remediation objectives for soil and groundwater.

The reporting limits and proposed action levels for VOCs for soil and ground water are listed in Tables Two and Six in Attachment B, respectively.

9. **Section 3.2 Metals, Page 5:** Please provide a table or tables listing the project required Metals and the project required MDLs, PQLs, or RLs for soil and groundwater.

The reporting limits and proposed action levels for the project required Metals for soil and ground water are listed in Tables Three and Seven in Attachment B, respectively.

10. **Section 3.2 Metals, Page 5:** Please provide a table or tables listing the project required Metals and cyanide (CN), and the project required MDLs, PQLs, or RLs for creek sediment.

The reporting limits for the project required Metals and CN are listed in Table Three in Attachment B.



11. **Section 3.2 Metals, Page 5:** Please include the site remediation objectives for soil, groundwater, and creek sediment.

The action levels that will be used to evaluate the results of the proposed Site Investigation are discussed in Section 5.0 and are listed on Tables Two through Seven in Attachment B.

12. **Section 3.2.1, Soil, Page 5:** The third sentence of this section reads "...During the field activities the soil samples will be screened and visually classified." Since the screening is for metals, the method that will be used to screen the collected soil samples should be specified. If this is visual screening, the rationale for selecting a sample should be mentioned.

The criteria for selecting soil samples for laboratory analysis is further detailed in Section 4.3.1.

13. **Section 3.3 PCBs, Page 6:** Please provide a table or tables listing the project required polychlorinated biphenyls (PCBs) and the project required MDLs, PQLs, or RLs for the creek and ditch sediments. Please include the site remediation objectives for the creek and ditch sediments.

The (limits) and the action levels for PCBs in the sediment samples are listed in Table Five in Attachment B.

14. **Section 3.3.1 Creek Sediment, Page 6:** The second sentence of this section reads "Each sample will be analyzed for PCBs". In the previously submitted comments (Comment #11, February 9, 1998, letter), the U.S. EPA requested that samples be analyzed for PAH compounds, pesticides, metals, and PCBs. Please add these additional analysis, which must be performed to adequately characterize the sediment contamination.

These sample parameters have been added to the Site Investigation Work Plan. Please refer to Section 3.6.

15. **Section 4.2.1 Soil, Page 7:** The first sentence "CEI determined the number of proposed sampling locations using a sample grid with 150-foot spacing". Please state details of the grid design used to select sampling locations. Sample locations should also include areas of previously known contamination. Prior investigations conducted at Fansteel should be taken into consideration when choosing locations and evaluating the extent of contamination.



The grid design is discussed in Section 4.2.1 and, as discussed in Comment #2, additional borings were added in the vicinity of the former HWMU.

16. **Section 4.2.2 Ground Water, Page 7:** The Work Plan proposes to convert ten of the existing soil borings into groundwater monitoring wells, with seven wells along the site's west boundary, and utilizing one of these wells to monitor southwest flow direction of groundwater. Previous site investigations have revealed that the predominant groundwater flow directions in the site area is towards the south and the southwest direction. The proposed placement of wells completely eliminates monitoring wells on the south side, contrary to the original proposal (Site Investigation Plan). In its previous comments (Comment #7, February 9, 1998, letter), the U.S. EPA had requested placement of 2 monitoring wells, one on the south side and the other on the southwest side of Fansteel site. Please correct the Work Plan accordingly.

Please refer to the response to Comment #4.

17. **Section 4.2.3 Sediment, Page 7:** Please discuss how sample locations will be selected if water is present or flowing in Pettibone Creek or the ditch.

CEI will use a sediment sampler and collect samples, whether water is present or not. The sample methodology will be described in the sampling SOP.

18. **Section 4.3.1 Soil, Page 8:** The second paragraph of this section discusses establishing 32 Geoprobe sample locations and collecting samples using a 48-inch stainless steel sampling tube. Soil samples at a minimum, should be collected from 0-12 inches from all proposed locations.

Of the 33 planned soil borings, 8 will be emplaced through existing building foundations. Soil samples collected at a depth of 0-12 inches in the remaining 25 borings will be submitted for laboratory analysis of Pb, Cd, Ta and VOCs (refer to Table One in Attachment B and to Section 4.3.1).

19. **Section 4.3.1 Soil, Page 8:** The third paragraph of this section states "The borings will be continuously sampled and the geological material will be visually classified." Continuous sampling should be discussed further to indicate at what depths or using what criteria, a sample will be selected for analysis.



CEI will collect samples from each continuous interval within the boring. These samples will be retained for possible laboratory analysis. The criteria used to determine which samples will be initially submitted for laboratory analysis is discussed further in 4.3.1. Please also refer to the response to Comment #12 listed above.

20. **Section 4.3.1 Soil, Page 9:** Please discuss in more detail the collection of the VOC sample. Will the project laboratory, Great Lakes Analytical (GLA), supply all the VOC vials containing the preservatives? Will the samples ( 5 gram) be weighed in the field? Replicate samples should be collected, in case a re-analysis is needed and another sample vial is necessary for dry weight determination.

As described in Sections 4.3.1 and 4.3.3, CEI has revised the VOC soil and sediment sampling protocol and will use En Core™ Samplers for the VOC sample collection. Use of the En Core™ Sampler eliminates the need for field preservation. The En Core™ Samplers will be submitted to GLA, who will preserve the sample in accordance with SW-846 Method 5035. The GLA preservation methodologies will be described in the GLA QAPP.

21. **Section 4.3.1 Soil, Page 9:** Sample vials should not contain both preservatives, i.e., methanol and sodium bisulfate. The SW-846 Method 5035 specifies the preservative *sodium bisulfate*, not "sodium bicarbonate", as mentioned here.

As discussed in the response to Comment #20 above, the preservation will be performed by Great Lakes Analytical in a manner consistent with SW-846 Method 5035. The preservation methodology will be described in the GLA QAPP.

22. **Section 4.3.1 Soil, Page 9:** Samples should be collected and tested for effervescence to determine if sodium bisulfate can be used as a preservative.

As discussed in the response to Comment #20 above, the preservation will be performed by Great Lakes Analytical in a manner consistent with SW-846 Method 5035. The preservation methodology will be described in the GLA QAPP.

23. **Section 4.3.2 Ground Water, Page 9:** The Work Plan proposes to collect groundwater samples, and analyze them for VOCs (SW-846 Method 5030). The Work Plan also proposes to use methanol in the preservation of these samples. Please correct this paragraph to delete



reference to the use of methanol as a preservative for standard VOC sample preservation of groundwater samples, and substitute the use of hydrochloric acid instead.

This correction has been made in Section 4.3.2.

24. **Section 4.3.2 Ground Water, Page 9:** Please provide a diagram of the monitoring well.

A monitoring well construction diagram is included as Figure Five in Attachment A.

25. **Section 4.3.2 Ground Water, Page 9:** Bailers are not recommended for sampling. The U.S. EPA recommends low flow sampling techniques.

Low flow sampling techniques will be used and are discussed in Section 4.3.2.

26. **Section 4.3.2 Ground Water, Page 9:** The U.S. EPA Region 5 strongly recommends groundwater samples be collected unfiltered.

CEI will submit unfiltered ground water samples to GLA for laboratory analysis.

27. **Section 4.3.2 Ground Water, Page 9:** Groundwater field measurements of pH, temperature, and conductivity should also be taken. Please provide field SOPs for these parameters.

These parameters will be measured during the ground water sampling. The measurement protocol will be incorporated into the SOPs, which will be included as part of CEI's QAPP.

28. **Section 4.3.2 Ground Water, Page 9:** Groundwater VOC samples are preserved with hydrochloric or sulfuric acid to pH less than 2, not with "methanol".

The ground water VOC samples will be preserved with hydrochloric acid.

29. **Section 4.3.2 Ground Water, Page 9:** Discuss VOC sample collection procedure, i.e., full vial, no headspace. If bubbles are present, fill a new vial. Two vials are collected at each sampling location site and placed in a separate plastic bag.



The VOC ground water sampling procedures are discussed in Section 4.3.2. Additionally, the sampling protocol will be incorporated into the SOPs, which will be included as part of CEI's QAPP.

30. **Section 4.3.2 Ground Water, Page 9:** Clarify, or delete, the last sentence. The samples for metals analysis can be filtered after digestion.

As indicated in Comment #26 above, CEI will provide unfiltered ground water samples for laboratory analysis.

31. **Section 4.3.3 Sediment, Page 10:** At the end of the 3rd sentence, please replace "well" with sediment sampling location.

CEI has made this revision.

32. **Section 4.3.3 Sediment, Page 10:** The ditch sediment samples are being tested for PCBs and CN. Will separate samples be taken for each test? Please note that the samples should be preserved at 4° C.

CEI has expanded the analysis that will be performed on the ditch sediment samples (refer to Section 3.6). The sample containers and preservation methods for each ditch sediment sample are listed in Table One in Attachment B.

33. **Section 5.1 Objectives, Page 12:** The first paragraph of the section states that the site investigations seeks to "determine the nature and extent of potential near-surface soil and groundwater contamination" at the site, and to characterize "sediment samples collected from Pettibone Creek at locations both upstream and downstream from Fansteel outfalls to Pettibone Creek." The U.S. EPA's previous comments (February 9, 1998, letter) "An EE/CA for the Fansteel property that would identify the nature and extent of the contamination on the Fansteel property, particularly any contamination that may be contributing to the groundwater contamination..." should be the objective. Because underground storage tanks (USTs) were located on site, near surface investigations would not necessarily determine sources of contamination that may impact groundwater.



To avoid potential confusion, CEI has removed the term "near surface." The proposed soil and ground water investigation will extend to a depth of approximately 20 feet below ground surface, which should be adequate to evaluate potential releases from any USTs to the ground water.

34. **Section 5.1 Objectives, Page 12:** The second sentence of the second paragraph indicates comparing analytical results to EPA's Soil Screening Levels (SSL) model with default values or the "Generic Soil Screening Levels for Superfund". The use of the SSL model requires that site conditions are [the] same as the scenario used for this model. Care should be taken to account for any deviations in site conditions from the model. It would be more appropriate to use the *Illinois Pollution Control Board's (IPCB's) Tiered Approach to Corrective Action Objectives (TACO)*, 35 *Illinois Administrative Code (IAC) Part 742*, requirements for evaluating soil and sediment contamination criteria.

CEI will apply the TACO Tier I remediation objectives for industrial/commercial properties with Class I ground water to the site as action levels. Please refer to Section 5.0 for a discussion of the action levels and the subsequent determination of site-specific remediation objectives.

35. **Section 5.1 Objectives, Page 13:** The second sentence of the first paragraph reads "If significant soil contamination or a groundwater contamination plume is detected, an additional investigation may be performed to delineate the contaminant plume". The term significant contamination requires further description. If contamination above the remediation objective is present, additional investigations must be performed under this Work Plan.

As discussed in Section 5.2, CEI will establish site-specific remediation objectives after conducting the scope of work described in the Work Plan. If the extent of contamination for contaminants potentially impacting the Vacant Lot Site have not been defined with respect to these site-specific remediation objectives, CEI will perform additional soil and ground water testing as necessary to define the extent.

36. **Section 5.2 Technical Approach, Page 13:** In the last paragraph on page 13, the Work Plan proposes to collect six sediment samples from Pettibone Creek as a means of assessing Fansteel outfalls contamination contribution to the Creek. The proposed locations for the sediment samples will not conclusively determine the impact of discharges from the Fansteel property, since the sample points are not located at the discharge outfall of Fansteel (Figure Three). Comments #12 and 13 of the U. S. EPA's February 9, 1998, letter required that



samples be collected at the Fansteel outfall, as well as at locations north and south of the outfall. The Fansteel outfalls are situated at an elevated location compared to the Creek bed and collection of a sediment sample at this location would provide insight into past discharges from the outfall. This would also allow for a comparison of contaminant concentrations and a determination of the impact of Fansteel discharges. The collection of sediment samples upstream and downstream of the Fansteel outfalls must assist Fansteel in determining "...the nature and extent of sediment contamination..." in Pettibone Creek.

As discussed in Section 4.2.3, the proposed Creek sampling locations have been revised to include the outfall locations as well as additional locations south of 22nd Street.

37. Please include a Summary Table of the matrices Analysis, Sample Container, Preservation, and Holding Time Requirements. Please include the GLA provided sample containers for the VOC soil samples.

Table One in Attachment B has been revised to include this information.

38. Please include a sample number summary table listing the matrices, laboratory parameters, field parameters, number of samples, field blanks, field duplicates, trip blanks, and Matrix Spike (MS)/Matrix Spike Duplicates (MSDs). This information could be incorporated into TABLE ONE.

Table One in Attachment B has been revised to include this information.